

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings, which includes Figures 1-3, replaces the original sheets including Figures 1-3.

Attachment: Replacement Sheet (Figures 1-3)

REMARKS

Claims 1, 3, 5-8, 10, 12-14, 16 and 18-24 are pending in this application. Favorable reconsideration of this application, in light of the preceding amendments to the specification and the following remarks, is respectfully requested.

DRAWINGS

The drawings are objected to under 37 C.F.R. § 1.83(a) as not showing every feature of the invention specified in the claims.

In response to this objection, Replacement Sheets for Figures 1-3 are submitted herewith, including reference numbers 5, 6, and 7 corresponding to the damper grids, attachments, and sound delaying filters, respectively. Further, the specification is amended to be consistent with the Replacement Sheets.

Applicant respectfully submits the Replacement Sheets for Figures 1-3 and minor amendments to the specification obviate the objections to the drawings. Accordingly, Applicant respectfully requests that the objections to the drawings be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102

Claims 14, 16, 18, and 19 are rejected under 35 U.S.C. § 102(e) as anticipated by Killion et al. (U.S. Patent No. 6,151,399, herein Killion). The Applicant respectfully traverses this rejection for the reasons detailed below.

Applicant respectfully notes that claims 14, 16, 18, and 19 all depend from independent claim 8, and therefore include the features of independent claim 8. The Examiner admits that claim 8 is not anticipated by Killion in paragraph 3 of the January 13, 2005 Office Action. Therefore, Killion cannot properly be used as a basis for a 35 U.S.C. § 102(e) rejection of claims 14, 16, 18, and 19, which depend from independent claim 8.

Accordingly, Applicant respectfully requests that the rejection of claims 14, 16, 18, and 19 under 35 U.S.C. § 102(e) be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1, 3, 5-8, 10, 12, 13, and 20-21 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Killion. The Applicant respectfully traverses this rejection for the reasons detailed below.

Independent claims 1 and 8 recite a directional microphone assembly and a hearing aid, respectfully, including a means for transporting sound, “wherein an inner diameter of the hollow transporting means **are dimensioned in such a way that a frequency response of the transporting means are optimized.**” As detailed in the following discussion, the Applicant respectfully submits that Killion fails to disclose, teach, or suggest at least the above-identified feature of independent claims 1 and 8.

Killion is directed to a directional microphone system providing sufficient damping by adding a second novel acoustic damping resistor to the front and rear of the microphone and adjusting the combination of damping resistors to produce a proper difference in time delays between the front acoustic delay and the rear acoustic delay.”¹ Accordingly, Killion is focused on solving problems relating to time delays and the addition of a second resistor.

As noted above, the outstanding Office Action acknowledges that Killion does **not** specifically teach that the inner diameters of the hollow transporting means are dimensioned in such a way that the frequency response of the transporting means are optimized. With regard to claims 1 and 8, the outstanding Office Action goes on to state “in column 7, lines 19-25, Killion teaches that the sum of the volumes in tubes 85,86 i.e., the means for transporting sound 85,86, in combination with other variables, is selected so as to provide the

¹ Killion, Column 5, line 7-18.

correct time delay for the microphone.”² However, the Applicant respectfully notes column 7, lines 19-25 makes no reference whatsoever to the volumes of tubes 85 and 86. The Applicant cannot find any disclosure in Killion regarding the sum of the volumes in tubes 85 and 86, and therefore the Applicant is unclear as to which portion of Killion is being cited by the Examiner as teaching the transporting means recited in claim 1 and claim 8, “wherein the inner diameter of the hollow transporting means are dimensioned in such a way that the frequency response of the transporting means are optimized.”

Therefore, due to the lack of clarity of the rejection under 35 U.S.C. § 103(a) regarding the above-identified limitations of claims 1 and 8, the Applicant respectfully requests that the Examiner withdraw the finality of the rejections included in the outstanding Office Action, consider the remarks included in this response, and issue another Office Action clarifying the rejections if the Examiner believes that this response does not overcome all of the outstanding rejections.

Applicant notes that column 7, lines 48-52 of Killion recites “[c]onventional directional microphone construction would utilize only acoustic resistance 81, chosen so that the R-C time constant of resistance 81 and the compliance formed by the sum of the volumes in tube 85 and the rear volume 24 of cartridge 20 would provide the correct time delay.” The sum of the volumes referred to in the previous sentence is the sum of the volumes of tube 85 and the rear volume 24 of cartridge 20. Therefore, even if the Examiner intended to cite column 7, lines 48-52 of Killion, the rejection is still unclear since lines 48-52 refer to the sum of the volumes of tube 85 and the rear volume 24 of cartridge 20 instead of the sum of the volumes of tubes 85 and 86.

Therefore, Applicant respectfully submits that Killion fails to disclose, teach, or suggest a transporting means, “wherein an inner diameter of the hollow transporting means

² Office Action mailed January 13, 2005, pg. 4, lines 9-12.

are dimensioned in such a way that a frequency response of the transporting means are optimized,” as recited in claims 1 and 8.

Further, Applicant respectfully submits that there is no motivation for or suggestion of modifying tubes 85 and 86 of Killion to be “dimensioned in such a way that a frequency response of the transporting means are optimized.” Applicant notes that even when obviousness is based on a single prior art reference, there must be a showing of suggestion or motivation to modify the teachings of that reference. See B.F. Goodrich C.o.d. Aircraft Breaking Sys. Clrt., 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996).

Evidence that Killion is only directed to modifying the resistances to obtain appropriate time delays is described in Killion at column 8, lines 4-5, that states “[w]e have found that an acoustic resistance of only 680 Ohms will provide the required time delay.” Even further, problems related to choosing only one resistance is elaborated upon, and it is stated in column 9, lines 2-3, of Killion that “[t]he values of resistors 81 and 82 is then chosen to provide the required time delay.” Applicant notes that this resistance only pertains to the specific geometry of the tubes shown in Figure 3A of Killion, and Killion does not mention changing this geometry or any effects stemming from a change in the geometry of the tubes.

Further, Applicant is of the opinion, that from the disclosure of Killion, a skilled artisan would only learn that by choosing the acoustic resistance properly for both the rear and the front inlet tube resistors 81, 82 for a fixed sum of volumes in the tube and rear volume, a desired combination of response smoothness and time delay may be obtained when a Knowles Electronics TM-series microphone cartridge is used for the microphone.³

Applicant asserts the time delay can be used to modify the directivity, but it is not true that a specific time delay can be used to provide a certain frequency response. Changing the

³ Killion, column 9, lines 6-8.

volumes within the microphone system will not only modify the delay but will also modify the frequency response. It is possible to modify the time delay by changing the rear volume without changing the frequency response, or to modify the frequency response by changing the front volume while the time delay remains the same. More specifically, if one modifies the rear volume of a directional microphone one will modify the delay. This means the shape of the frequency response curve will remain the same, but will be shifted (i.e., the peak will occur at another frequency). However, if the mass of the air in the front tube, i.e. the inner volume (or inner diameter) changes, or the resistances in the system (such as the spout, or damping material in the front volume) changes, or the membrane tension changes, the shape of the frequency response curve will be modified.

Therefore, even if column 7, lines 62-66 of Killion teaches that the volume may have an effect on the time delay, Killion only refers to the sum of volumes and does not distinguish between the rear volume and the volume of the tube. Accordingly, in light of the above discussion, the Applicant respectfully submits that a person of ordinary skill in the art would not be motivated to adjust the volume of the tubes in Killion, because the person of ordinary skill in the art would first have to recognize the inventive potential that the sum of the volumes may be selected instead of the acoustic resistor, distinguish between the rear volume and the tube volume, and finally provide an optimized frequency response as stated in claims 1 and 8 of the present application.

The Applicant respectfully submits that at least the recognition requires inventive skill, and that one of ordinary skill in the art would not choose to modify the tubes in Killion absent information gleaned from the Applicant's specification. However, the use of the Applicant's specification results in an impermissible hindsight reconstruction analysis. Accordingly, the Applicant respectfully submits that the claimed invention is not rendered obvious in the view of Killion.

The Applicant maintains, therefore, that the Action does not present the required “convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references,” Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985), and that the rejection of claims 1 and 8 under 35 U.S.C. § 103(a) may not be properly maintained absent such reasoning.

Claims 3, 5-7, 10, 12, 13, 20, and 21 depend from independent claims 1 and 8, and therefore include the features of claims 1 and 8.

Therefore, in light of the above discussion, Applicant respectfully requests that the rejection of Claims 1, 3, 5-8, 10, 12, 13, 20, and 21 under 35 U.S.C. §103(a) be withdrawn.

Claims 22-24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Killion in view of Macaluso et al. (U.S. Patent No. 6,160,896, herein Macaluso). The Applicant respectfully traverses this rejection for the following reasons detailed below.

Independent claims 22 and 23 recite a directional microphone assembly and hearing aid, respectively, each reciting, *inter alia*, a transporting means “wherein a diameter of the at least two inlet holes are dimensioned according to a required directionality.”

Applicant respectfully submits that Killion fails to disclose, teach, or suggest the above-identified feature of claims 22 and 23. Further, the outstanding Office Action acknowledges on page 6, lines 8-9, that “Killion does not clearly teach that the diameter of the at least two inlet holes for sound are dimensioned according to a required directionality.

Applicant also respectfully submits that there is no motivation to combine the references of Killion and Macaluso. The same argument discussed above regarding the lack of motivation for modifying the tubes of Killion applies to establishing a lack of motivation for combining Killion with Macaluso. More specifically, Killion addresses the problems of directionality, Macaluso (US 6,160,896) with a required audio response. As described above, directionality is not a specific part of the feature audio response (i.e. frequency response).

Directionality and feature audio response are separate features, and a skilled person in the art at the time of the invention would not be expected to assume any relationship between directionality and frequency response absent an impermissible hindsight reconstruction using the Applicant's specification.

Accordingly, Applicant respectfully submits that Killion cannot be combined with Macaluso since the person skilled in the art does not have any motivation for combining these two documents.

Claim 24 depends from claim 23, and therefore includes the features of dependent claim 23.

Therefore, in light of the above discussion, Applicant respectfully requests that the rejection of Claims 22-24 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

Accordingly, in view of the above amendments to the specification, Replacement Sheets for Figures 1-3, and remarks, reconsideration of the objections and rejections and allowance of each of claims 1-24 in connection with the present application is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) hereby petition(s) for a two (2) month extension of time for filing a reply to the outstanding Office Action and submit the required \$450.00 extension fee herewith.

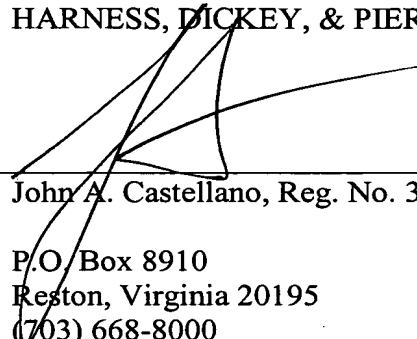
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John A. Castellano at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By


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